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be determined on the basis of the above-mentioned control data and starting the generation of the above-mentioned tone signal in the allocated sounding channels.

According to the above-mentioned novel constitution, the power to the tone generator for generating tone signals for plural sounding channels in a time division manner can be saved only by adding a simple configuration to a related-art tone generator.

(2) A signal processing apparatus for executing operations of plural steps for every sampling period on the basis of an operating clock, comprises a signal processing block for executing signal processing, a control data input block for inputting the number of steps of a processing operation to be executed by the signal processing block, a clock control block for controlling, on the basis of the above-mentioned control data, the supply of the operating clock to the signal processing block, and a processing program selecting block for selecting a program to be executed by the signal processing block in a range of the number of steps determined in accordance with the control data and for setting the selected program to the signal processing block.

According to the above-mentioned novel constitution, the power to the signal processor for executing operations of plural steps in every sampling period can be saved only by adding a simple configuration to a related-art signal processor.

(3) A tone generating apparatus operating on the basis of an operating clock, comprises a tone generating block for generating tone signals for plural sounding channels in a time division manner, a sounding control block for allocating, in accordance with a sounding start instruction, the sounding of a tone signal corresponding to this sounding start instruction to any of the above-mentioned plural sounding channels and starting the generation of this tone signal in the allocated sounding channel, a volume detecting block for detecting a volume level of each of the above-mentioned plural sounding channels, a control data generating block for generating, on the basis of the detected volume level of each sounding channel, control data for controlling the supply of the operating clock for each sounding channel, and a clock control block for controlling, on the basis of the above-mentioned control data, the supply of the operating clock to the above-mentioned tone generating block.

According to the above-mentioned novel constitution, the supply of the operating clock to the tone generator on the basis of the volume level of each sounding channel, thereby maximizing the power saving of the tone generator.

(4) A signal processing apparatus for executing operations of plural steps in every sampling period on the basis of an operating clock, comprises a signal processing block for executing signal processing, a processing program selecting block for selecting a program to be executed by the above-mentioned signal processing block and setting the selected program to the signal processing block, a control data generating block for generating, on the basis of the set program, control data indicative of a program range not valid or effective in this program, and a clock control block for preventing, on the basis of the above-mentioned control data, a part of the clocks from being supplied to the signal processing block.

According to the above-mentioned novel constitution, the operating clock is supplied only for a period in which a valid program is being executed, thereby maximizing the power saving of the signal processor. The valid program herein denotes a program in which a result of signal processing (for example, effect processing) executed by that program has been converted into a perceivable tone.

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As described and according to the invention, the supply of a clock signal to a processing circuit can be controlled in synchronization with a sampling period, thereby reducing the power consumption of the processing circuit in accordance with processing load by a simple configuration.

While the preferred embodiments of the present invention have been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the appended claims.

What is claimed is:

1. An apparatus for processing a music tone signal in response to a clock signal at each sampling period, the apparatus comprising:

a clock generator that generates the clock signal;

a signal processor operable in synchronization to the clock signal for time-divisionally processing a plurality of music tone signals through a plurality of channels within one sampling period; and

a clock controller being operative during a supply duration allocated within one sampling period for supplying the clock signal to the signal processor from the clock generator to thereby operate the signal processor, and being operative during other than the supply duration within one sampling period for stopping the supplying of the clock signal to the signal processor to thereby suspend the signal processor.

2. The apparatus according to claim 1, further comprising an allocating device that allocates a predetermined supply duration within one sampling period, and a specifying device that specifies a detail of processing of the music tone signals in accordance with the predetermined supply duration so that the signal processor can complete the processing of the music tone signals within the predetermined supply duration.

3. The apparatus according to claim 2, wherein the allocating device allocates the predetermined supply duration based on a predetermined number of channels through which music tones are generated concurrently by the processing of the music tone signals.

4. The apparatus according to claim 2, wherein the allocating device allocates the predetermined supply duration based on a predetermined number of steps by which a program is executed stepwise for processing the music tone signals.

5. The apparatus according to claim 2, wherein the specifying device specifies the detail of the processing of the music tone signals in terms of a number of channels through which the music tone signals are processed for concurrent generation of music tones.

6. The apparatus according to claim 2, wherein the specifying device specifies the detail of the processing of the music tone signals in terms of a kind of a program selectably executed by the signal processor in the processing of the music tone signals.

7. The apparatus according to claim 1, further comprising a specifying device that specifies a detail of processing of the music tone signals, and an allocating device that allocates a supply duration within one sampling period in accordance with the specified detail of the processing so that the signal processor can complete the specified detail of the processing of the music tone signals within the allocated supply duration.

8. The apparatus according to claim 7, wherein the allocating device allocates the supply duration in accordance with the specified detail of the processing in terms of a predetermined number of channels through which music

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tones are generated concurrently by the processing of the music tone signals.

9. The apparatus according to claim 7, wherein the allocating device allocates the supply duration in accordance with the specified detail of the processing in terms of a predetermined number of steps by which a program is executed stepwise for processing the music tone signals. 5

10. The apparatus according to claim 7, wherein the specifying device specifies the detail of the processing of the music tone signals in terms of a number of channels through which the music tone signals are processed for concurrent generation of music tones. 10

11. The apparatus according to claim 7, wherein the specifying device specifies the detail of the processing of the music tone signals in terms of a kind of a program selectably executed by the signal processor in the processing of the music tone signals. 15

12. The apparatus according to claim 1, wherein the signal processor processes the music tone signal in such a manner that waveform data of a designated timbre is read out to generate the music tone signal at a designated pitch. 20

13. The apparatus according to claim 1, wherein the signal processor processes the music tone signal in such a manner that waveform data is read out to generate the music tone signal and the generated music tone signal is subjected to filter processing. 25

14. The apparatus according to claim 1, wherein the signal processor processes the music tone signal in such a manner as to control an amplitude of the music tone signal.

15. The apparatus according to claim 1, wherein the signal processor processes the music tone signal in such a manner as to impart an effect to the music tone signal. 30

16. A method of processing a music tone signal in response to a clock signal at each sampling period, the method comprising the steps of:

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continuously generating the clock signal;

operating a signal processor in synchronization to the clock signal for time-divisionally processing a plurality of music tone signals through a plurality of channels within one sampling period;

supplying the generated clock signal to the signal processor so as to operate the signal processor during a supply duration allocated within one sampling period; and

stopping the supplying of the generated clock signal to the signal processor so as to suspend the signal processor during other than the supply duration within one sampling period.

17. A medium for use in a music apparatus having a signal processor for processing a music tone signal in response to a clock signal at each sampling period, the medium containing program instructions executable by the music apparatus to perform a method comprising the steps of:

continuously generating the clock signal;

operating the signal processor in synchronization to the clock signal for time-divisionally processing a plurality of music tone signals through a plurality of channels within one sampling period;

supplying the generated clock signal to the signal processor so as to operate the signal processor during a supply duration allocated within one sampling period; and

stopping the supplying of the generated clock signal to the signal processor so as to suspend the signal processor during other than the supply duration within one sampling period.

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